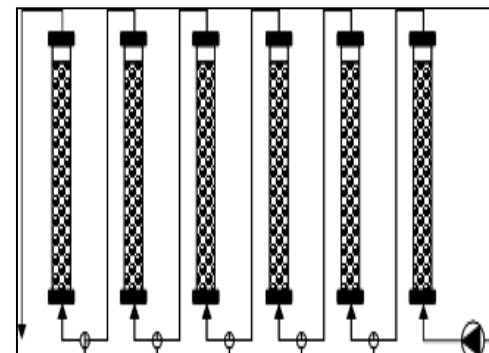
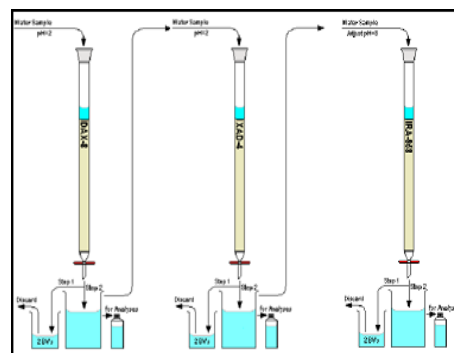


# The NOMiNOR project

## Results from testing of PeCOD as an alternative to DOC

B. Eikebrokk and G. Thorvaldsen, SINTEF

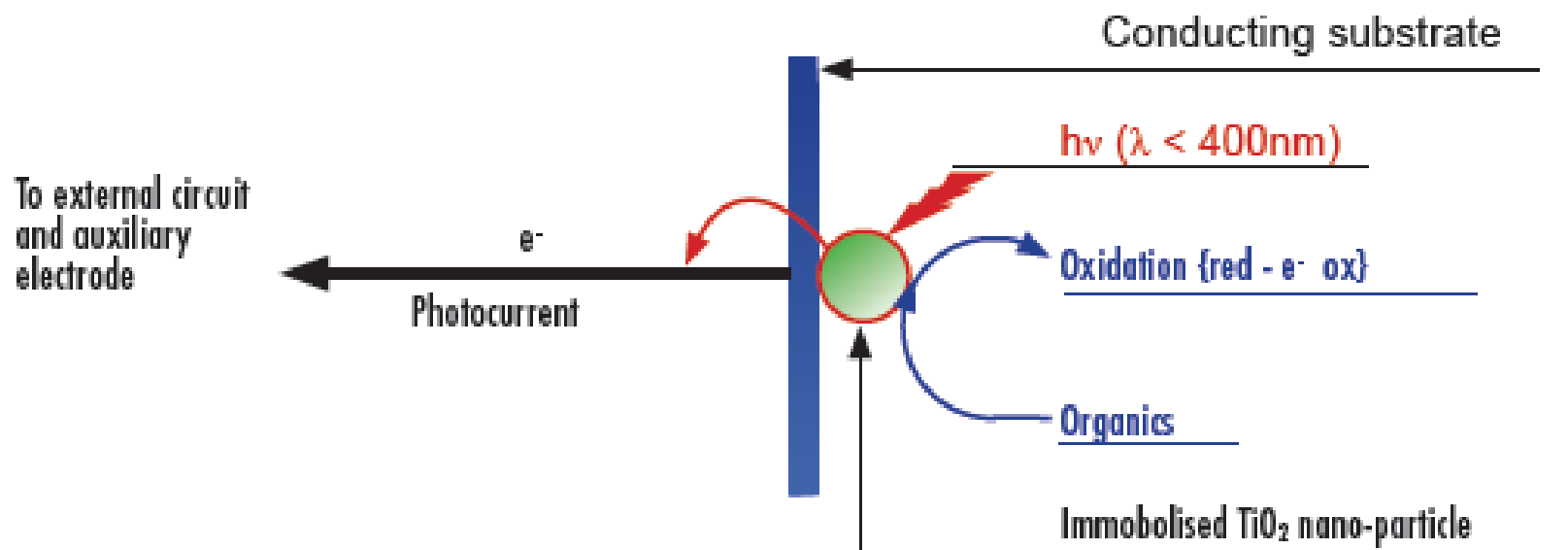


B. Eikebrokk, Chief Researcher, Dr. , SINTEF Norway  
bjornar.eikebrokk@sintef.no

# The principle of PeCOD<sup>®</sup> measurement

MANTECH INC, Guelph, Ontario, Canada

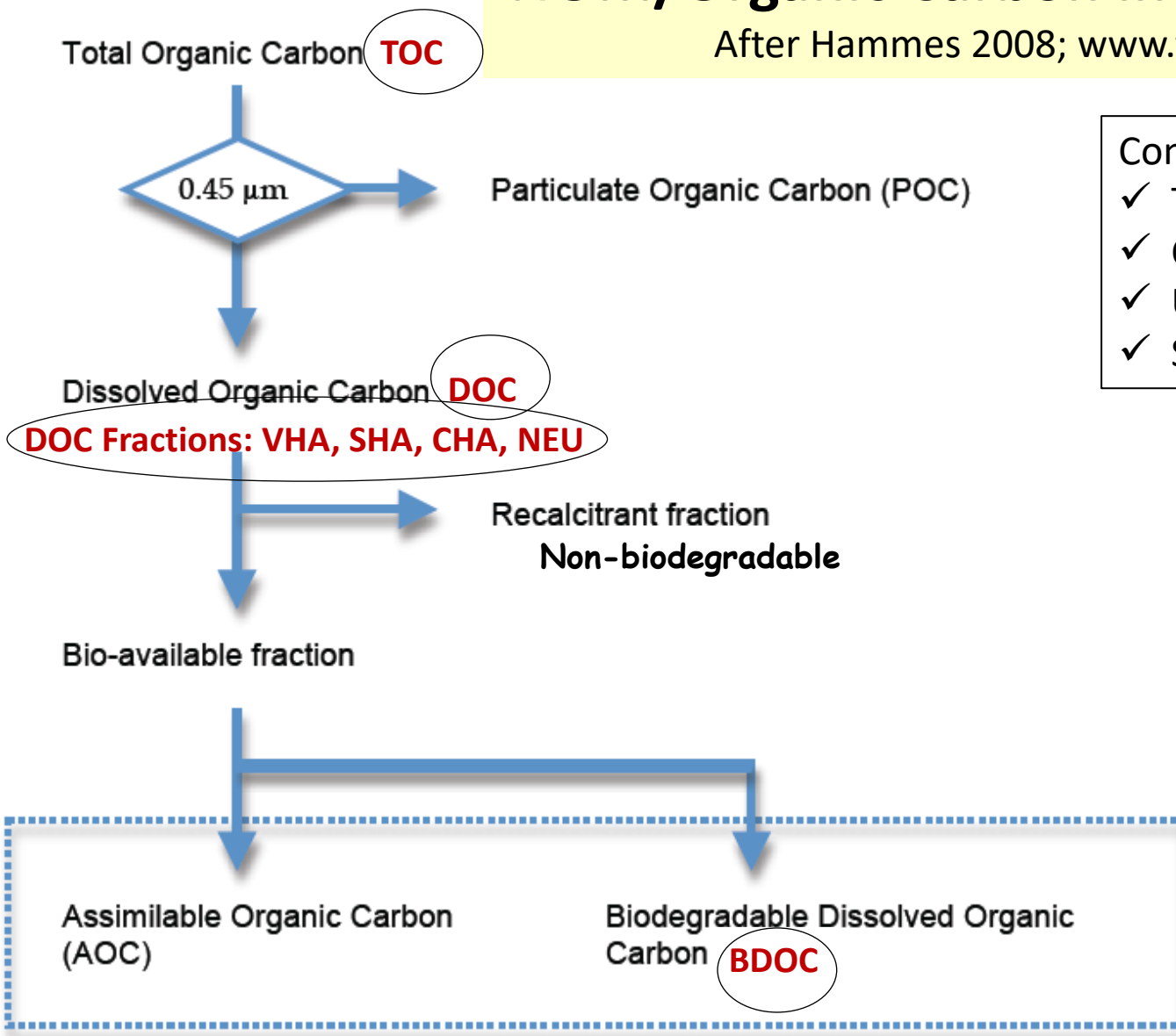
[www.mantech-inc.com](http://www.mantech-inc.com)



Schematic of the photo-electrocatalytic process involved in the analytical signal generation

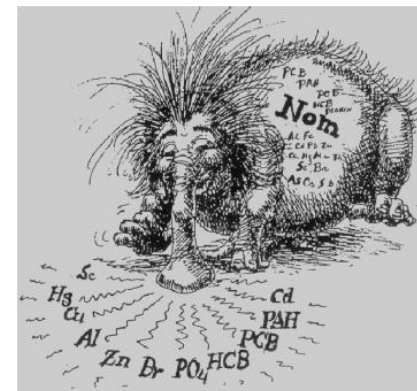
# NOM/Organic Carbon in Drinking Water

After Hammes 2008; www.techneau.eu



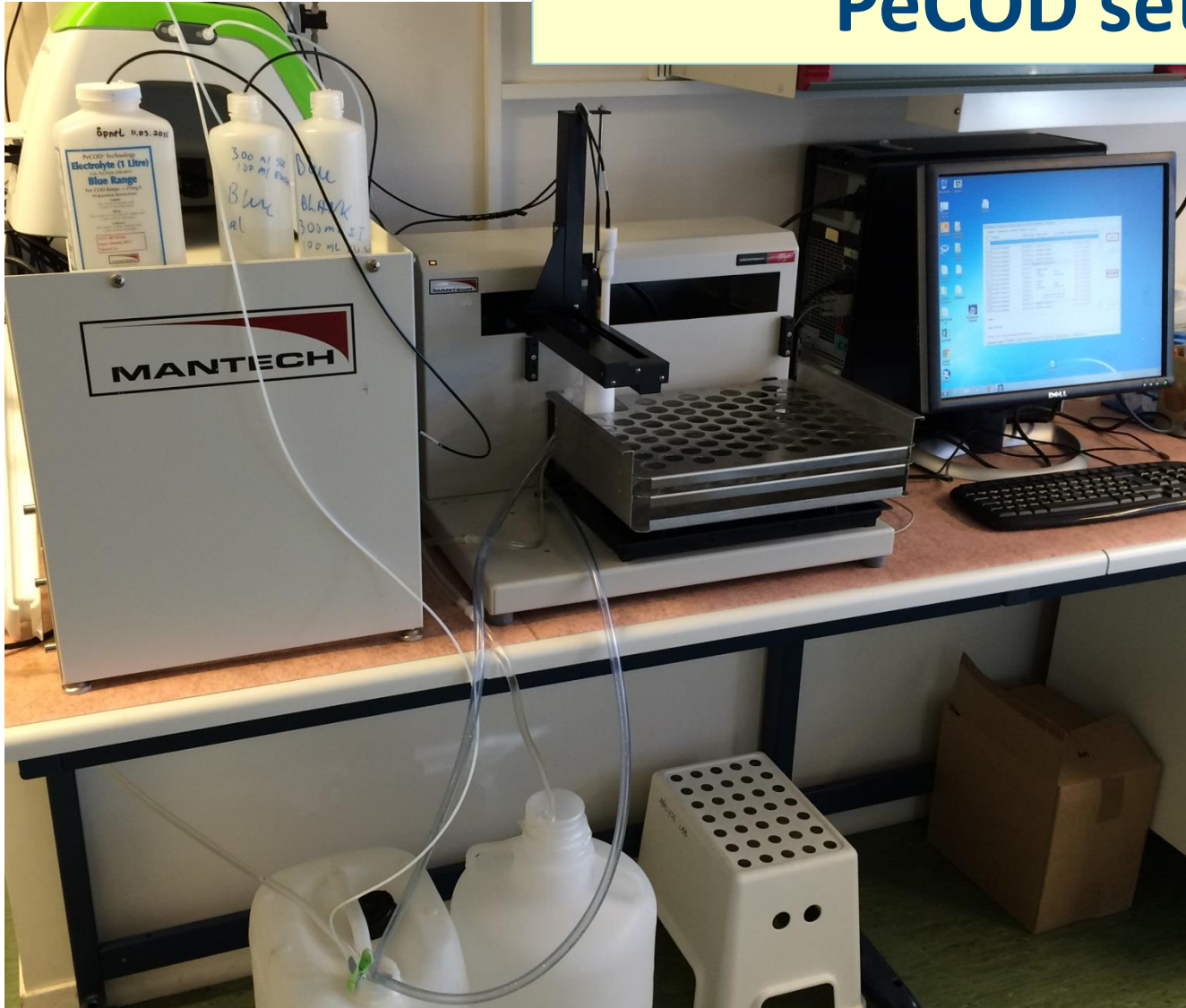
Conventional parameters

- ✓ TOC and DOC
- ✓ Colour
- ✓ UV-absorbance
- ✓ SUVA

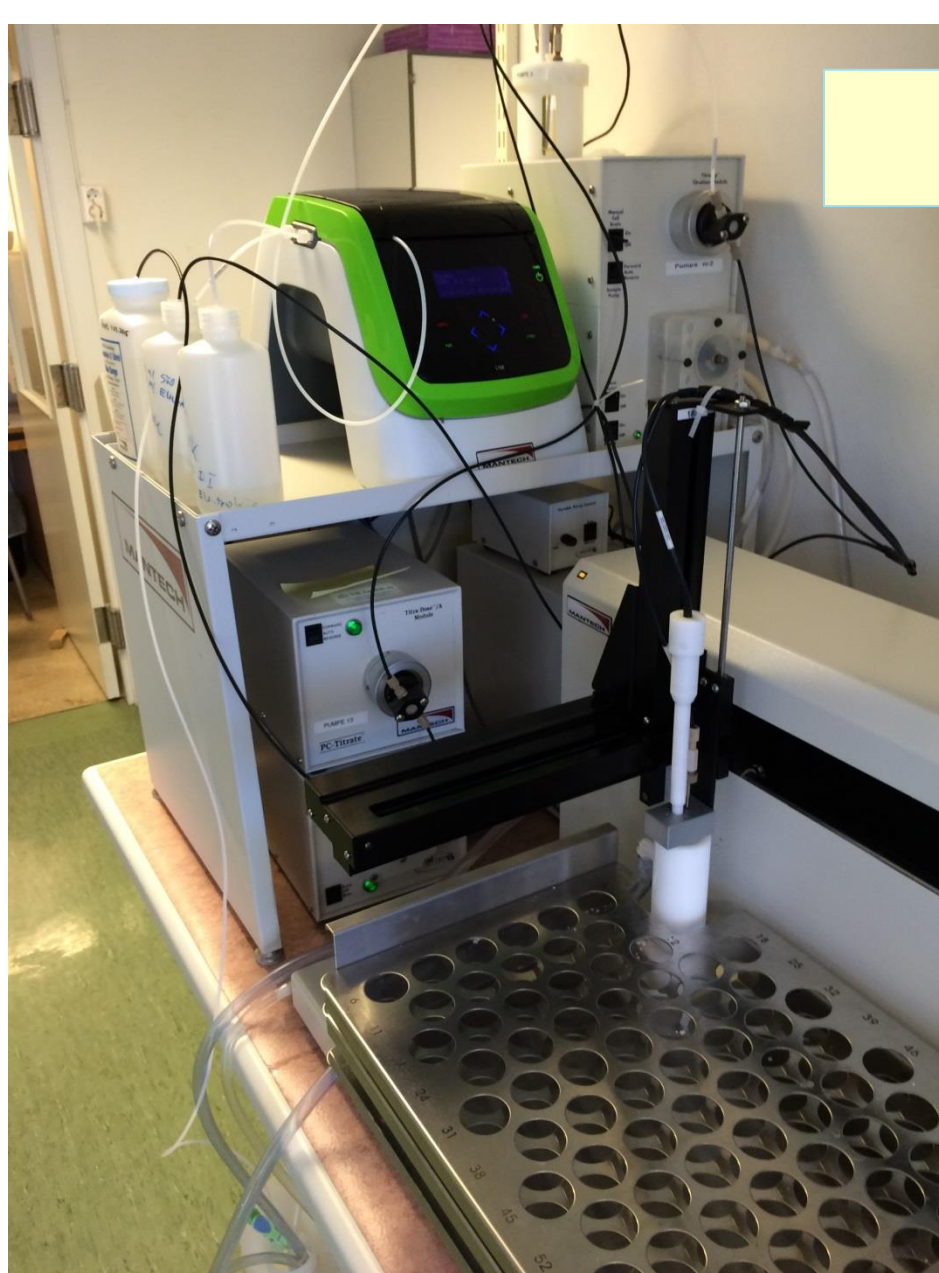


A complex matter that need more characterizing parameters?

# PeCOD set-up



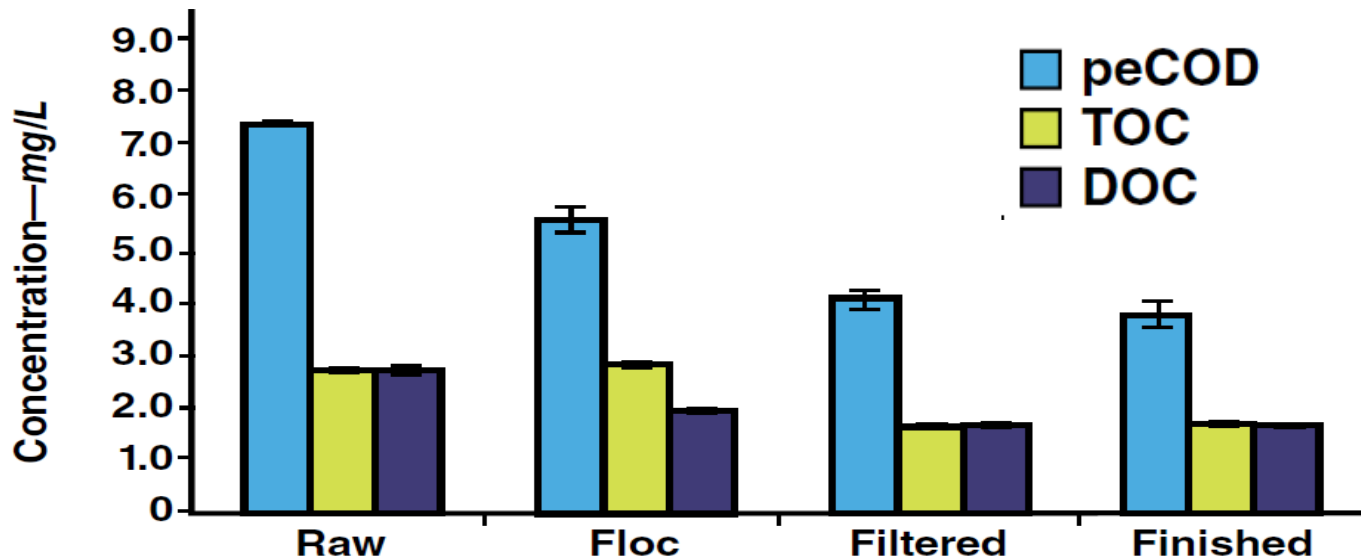
# PeCOD set-up



# PeCOD<sup>®</sup> versus TOC and DOC

STODDART & GAGNON | 106:9 • JOURNAL AWWA

**FIGURE 1** Comparison of Pockwock Lake peCOD, TOC and DOC during treatment

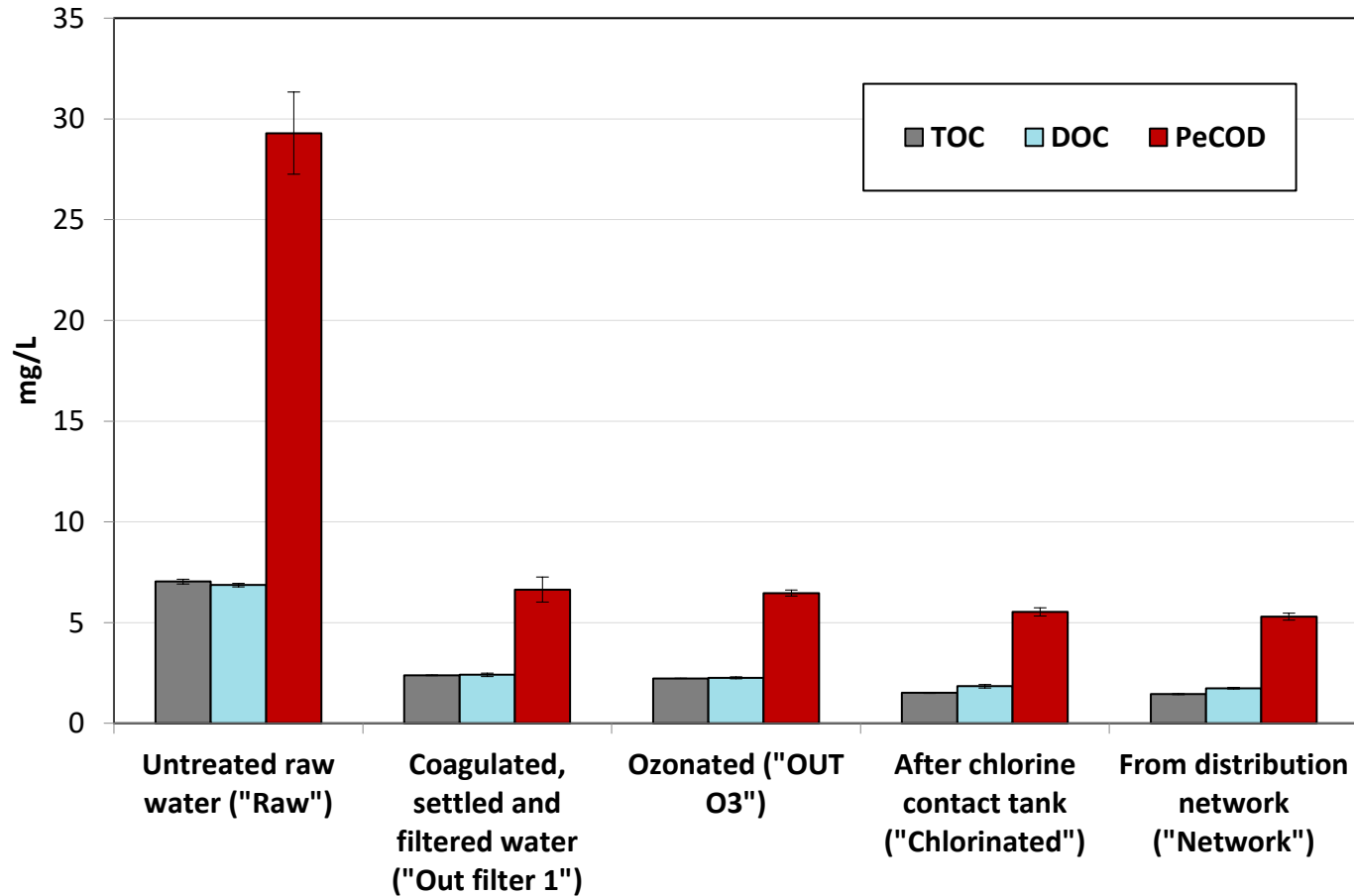


DOC—dissolved organic carbon, floc—flocculated water, peCOD—photoelectrochemical chemical oxygen demand, TOC—total organic carbon

Error bars represent 95% confidence intervals with  $n = 3$ .

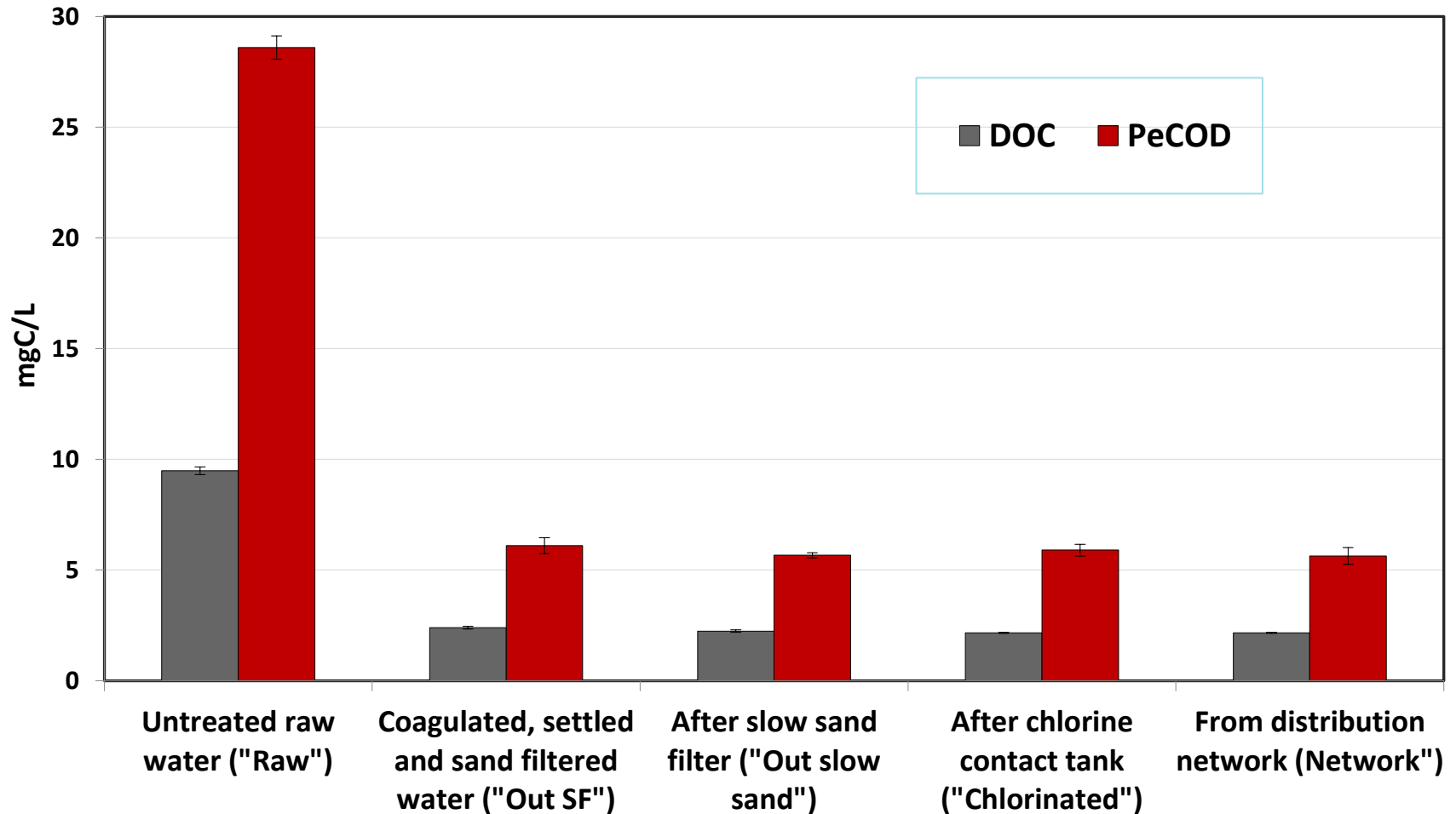
# Testing of PeCOD<sup>®</sup> versus TOC and DOC

## NOMiNOR Water Samples HSY-FIN



# Testing of PeCOD<sup>®</sup> versus TOC and DOC

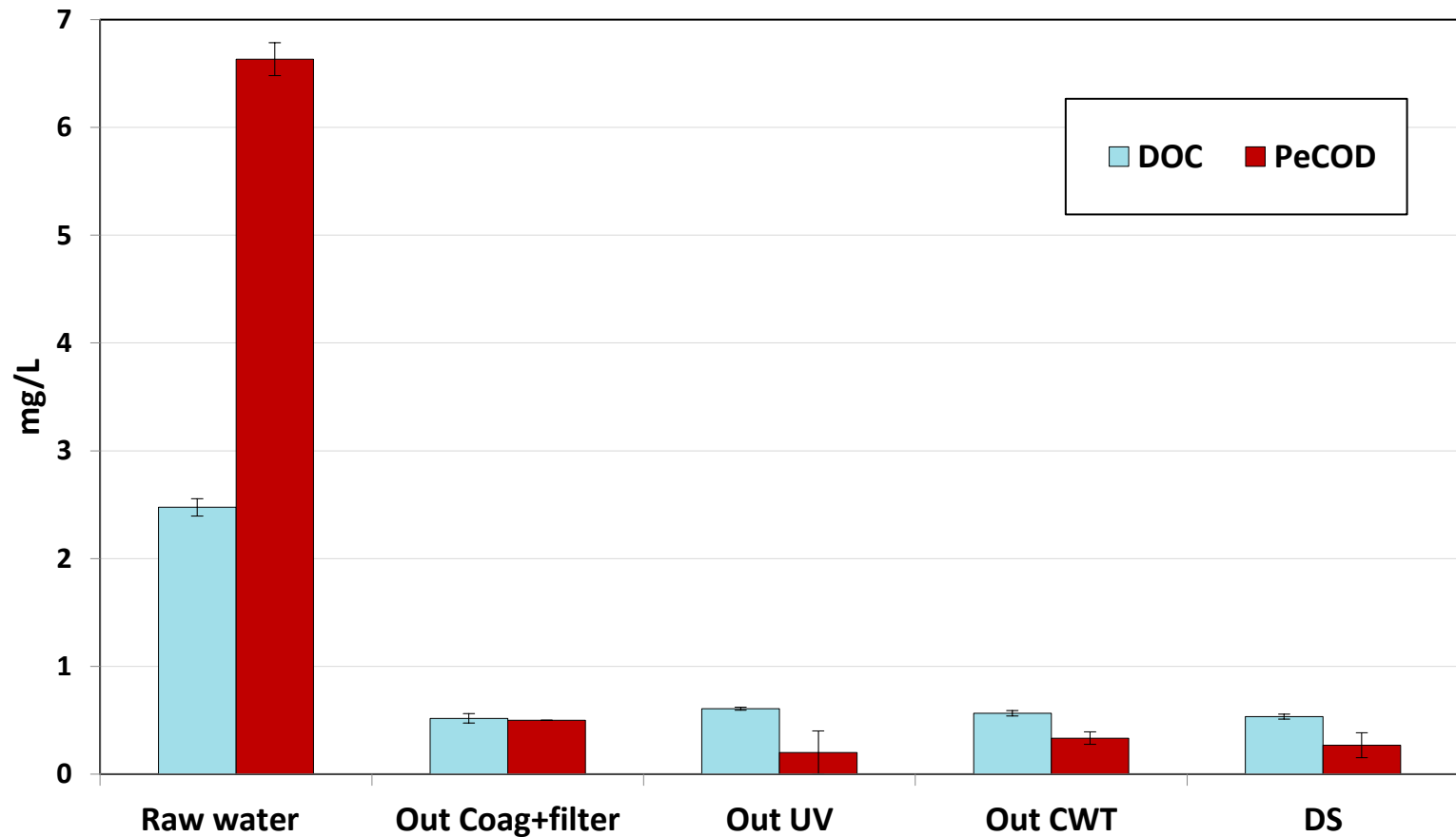
## NOMiNOR Water Samples SYDVATTEN-SWE





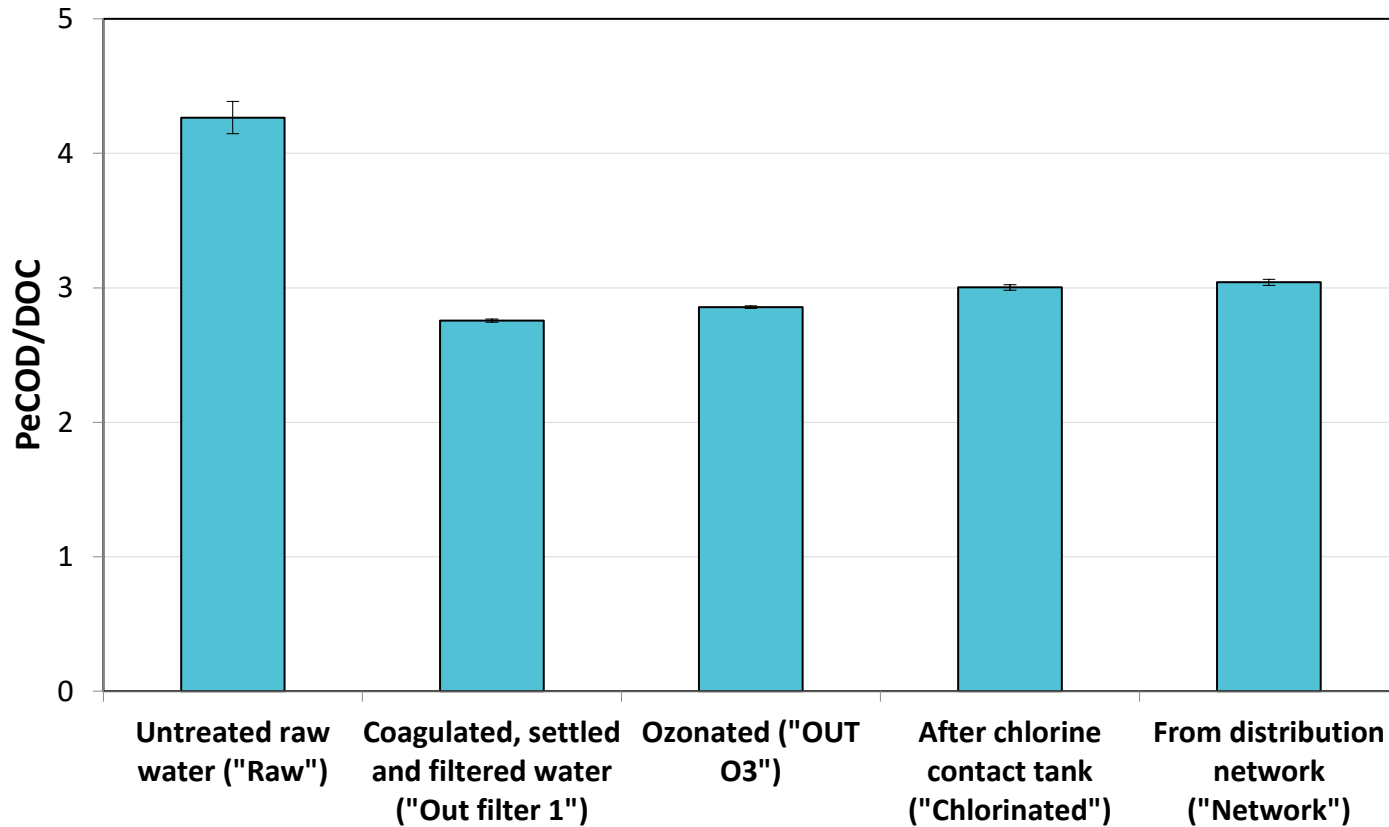
# Testing of PeCOD<sup>®</sup> versus TOC and DOC

## NOMiNOR Water Samples JOR-NO



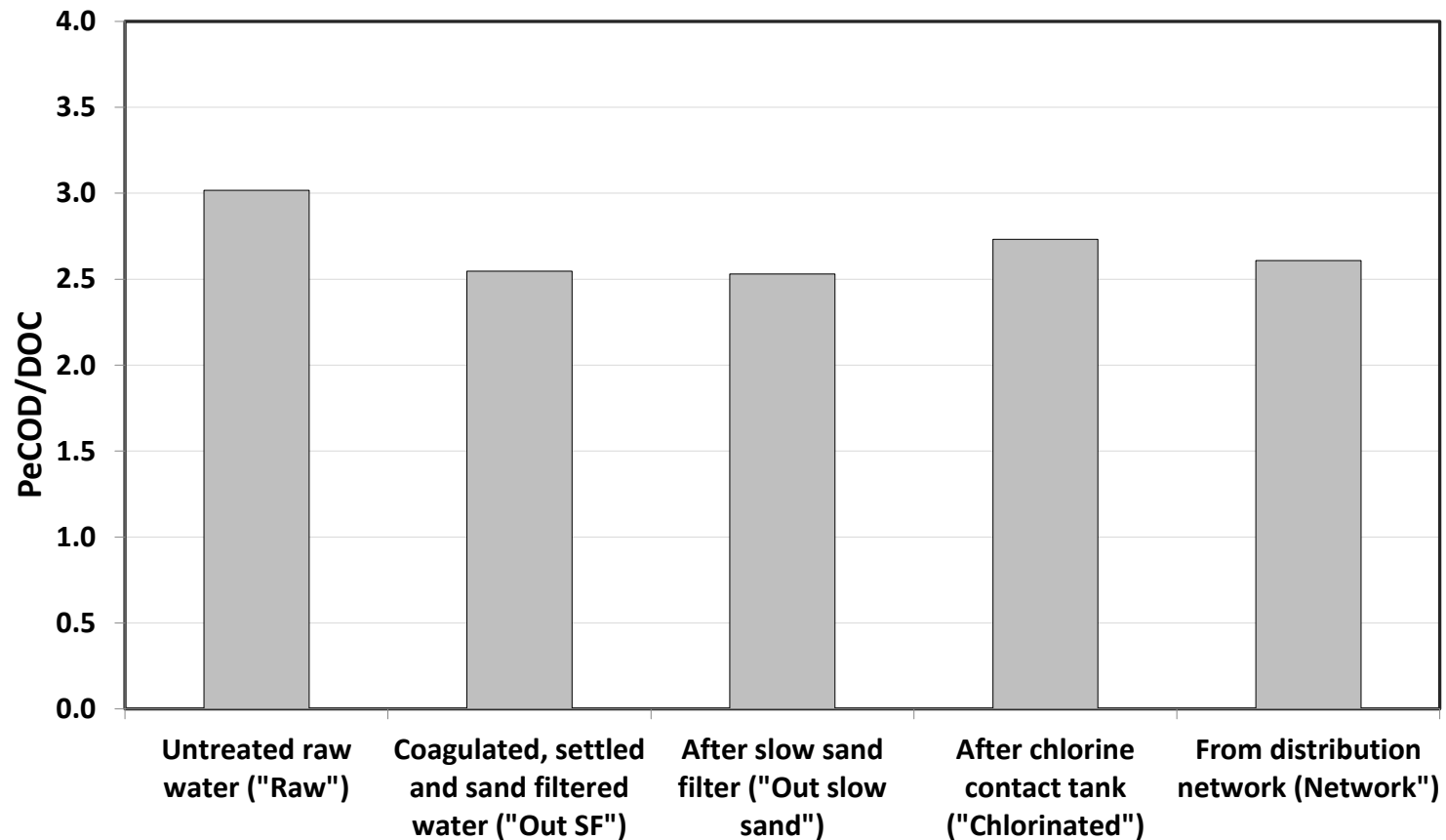
# PeCOD<sup>®</sup> to DOC Ratios

## NOMiNOR Water Samples HSY-FIN



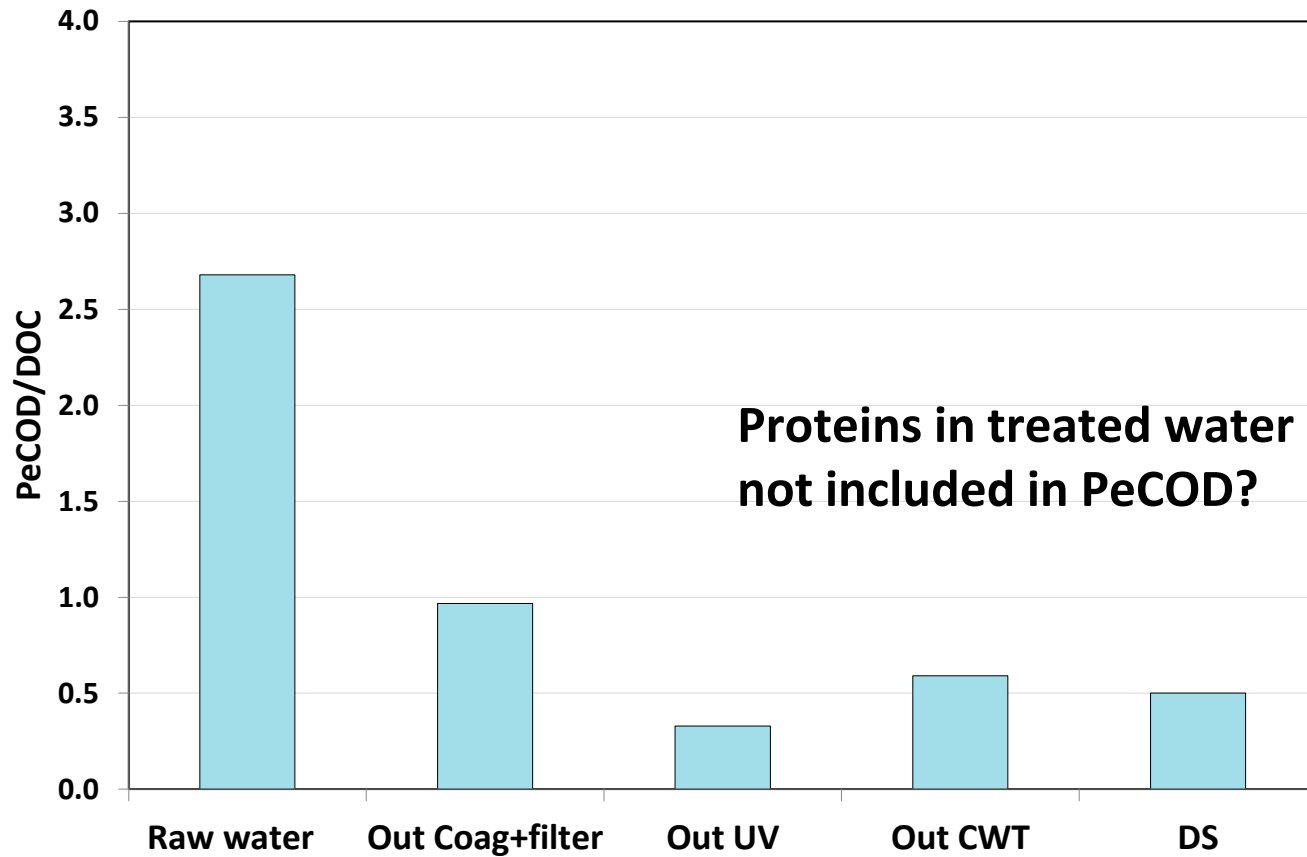
# PeCOD<sup>®</sup> to DOC Ratios

## NOMiNOR Water Samples SYDVATTEN-SWE



# PeCOD<sup>®</sup> to DOC Ratios

## NOMiNOR Water Samples JOR-NO



## PeCOD<sup>®</sup> or DOC

- ✓ PeCOD more sensitive than DOC
  - ✓ PeCOD measures soluble COD – not including proteins, macromolecules or cellulose → Filtered samples
  - ✓ PeCOD can be automated
  - ✓ PeCOD can be used as a portable field analyser
  - ✓ PeCOD can be used on-line
- PeCOD: an alternative to DOC for NOM fractionation and BDOC?
- Can PeCOD provide supplementary information?